

Pontiac G8 Radio EEPROM Modifications for Video In Motion, Startup Logo Animations, and Reverse Camera enable for V9 radios

The Pontiac G8 has extra features built into it that are not enabled from the factory. The common features requested to change are Video In Motion, Reverse Camera, and Startup Logos. These settings are modified by accessing an EEPROM chip inside the radio head unit, reading its binary file, modifying bytes in hex data, and programming the new binary file back to the radio head unit.

DISCLAIMER: I am not responsible for any damage caused by modifications you choose to make. Inserting the wrong hex keys or damaging connectors could potentially brick your head unit. Proceed with caution and research EEPROM chips, programmers, and hex code so you know what you are getting into beforehand.

The G8 has two main EEPROMs, one in the head unit itself, and one in the faceplate. The head unit is the EEPROM we will be accessing, because it holds the valuable information we want to change. The main unit's EEPROM chip is a 24C16WP chip. For this style chip, there is no need to cut the chip out and resolder, you can simply attach a clip and wire to a USB programmer and connect to a PC.

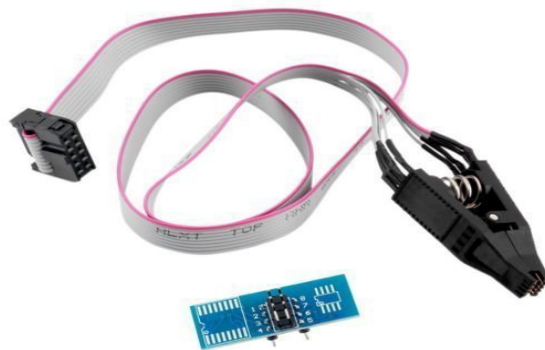
TOOLS REQUIRED:

24Cxx EEPROM test clip/wire
EEPROM USB programmer
Torx bits T20 and T5

For the clip, I used **Signstek SOIC8 SOP8 Flash Chip IC Test Clips Socket Adpter Programmer BIOS/24/25/93** from Amazon for \$12.99.

https://www.amazon.com/gp/product/B00V9QNAC4/ref=oh_aui_detailpage_o03_s00?ie=UTF8&psc=1

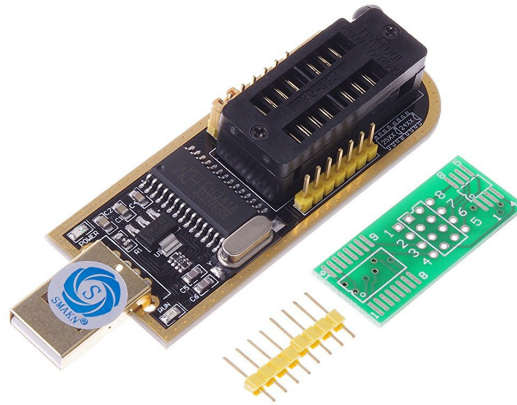
There are many different clips out there, if you choose to source another one, just make sure it is compatible with 24Cxx style EEPROM chips. You will want one with an attached ribbon cable like this so you can extend it to plug into a USB programmer on your PC.



For the programmer, I used **SMAKN® USB Programmer CH341A Series Burner Chip 24 EEPROM BIOS LCD Writer 25 SPI Flash** from Amazon for \$10.90.

https://www.amazon.com/gp/product/B013Q5P3ES/ref=oh_aui_detailpage_o03_s00?ie=UTF8&psc=1

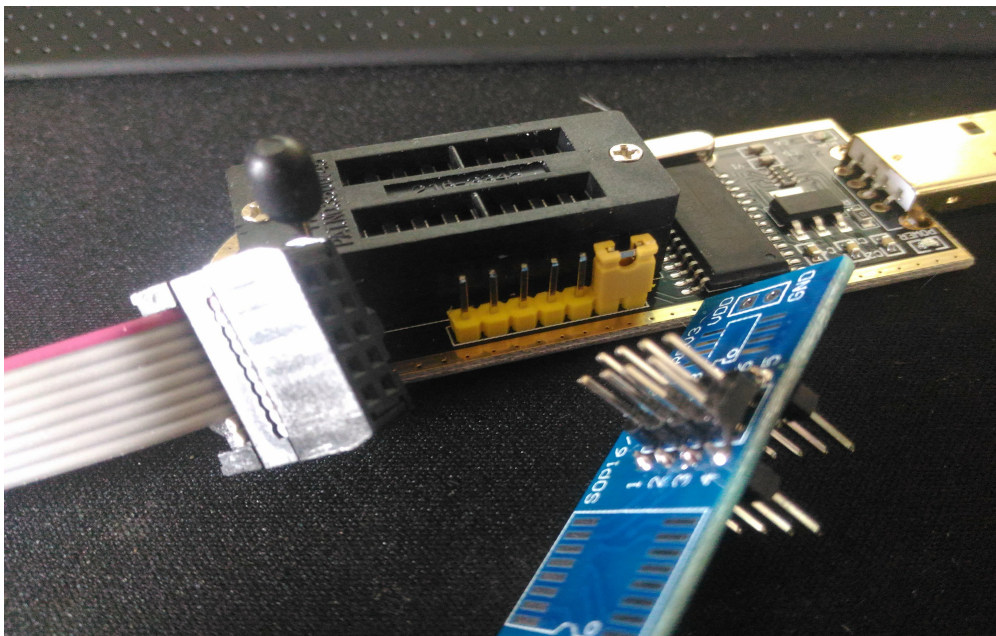
There are many other USB programmers out there, again, if you choose to source another, ensure it is 24Cxx compatible. I had no issues with mine, even being a cheap Chinese tool. The key to find is the CH341A programmer. There's quite a few videos on Youtube detailing its setup instructions, and some driver issues, but I will include the drivers to use.



TOOL SETUP:

The EEPROM clip/wire must be set up in an EXACT way to prevent damage to the chip.

Here you will see some of the tools. The cable comes with a little blue board that adapts the ribbon cable to pins for the programmer, the programmer comes with a little green board and some yellow header connectors, these are not used.



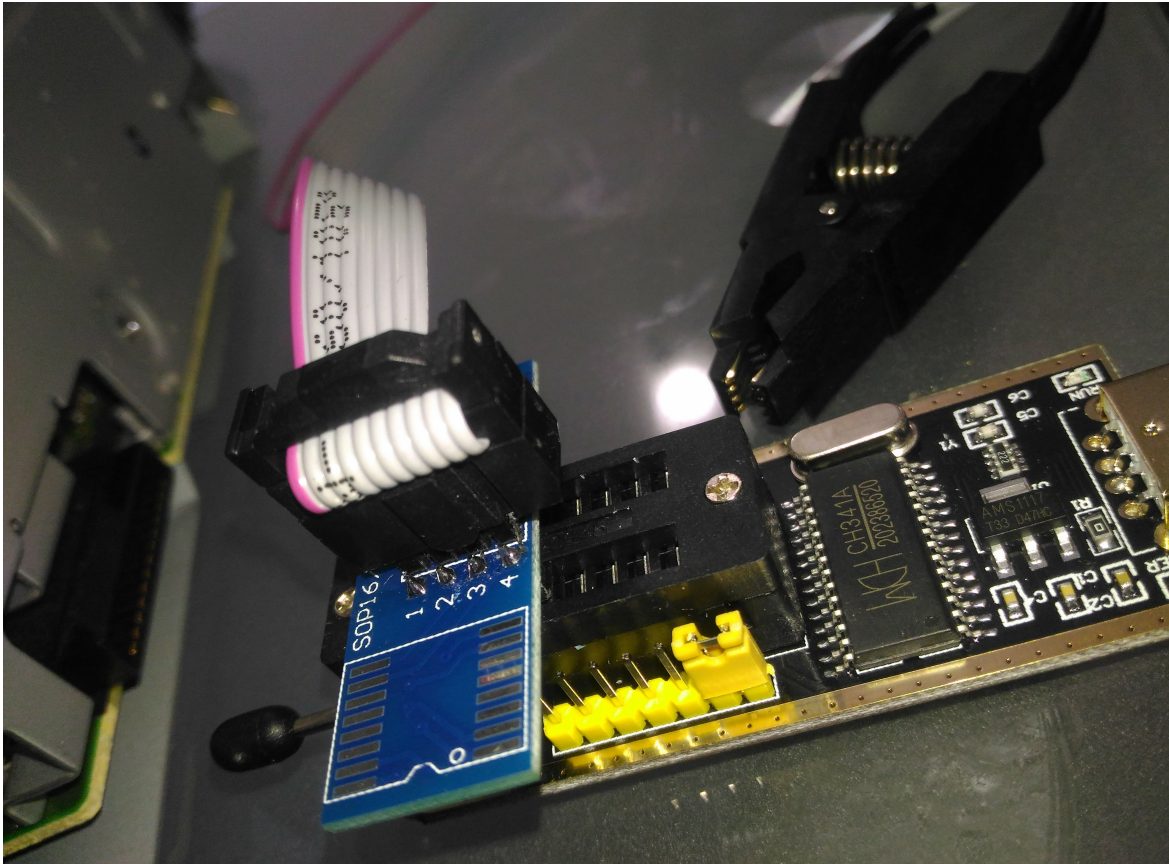
IMPORTANT: The single red wire is intended for PIN 1. This must be aligned properly with PIN 1 on the programmer and PIN 1 on the EEPROM chip inside the radio.



The little blue board between the programmer has numbers 1-8 on it. The ribbon cable has a 10-pin connector on it. Two of those pins on the ribbon cable are NOT used. So align the red wire on the ribbon cable to PIN 1 on the blue programmer board exactly as seen below.



The USB programmer has a total of 16 slots to use, because it is universal for many types of chips, but only 8 are used. Once you have the ribbon cable and blue board connected, open the locking bar, insert the pins from the blue board into the USB programmer in the 8 pins furthest away from the USB plug, closest to the locking pin, like seen in this picture, then close the locking bar. It is extremely important for PIN 1 to match everywhere (due to voltage differences). Triple check this one more time. Red Wire connects to PIN 1 on the blue board. PIN 1 on the blue board to PIN 1 on the black board. PIN 1 on the black board is not actually labeled, but with the USB plug facing to the right, PIN 1 is the bottom left.



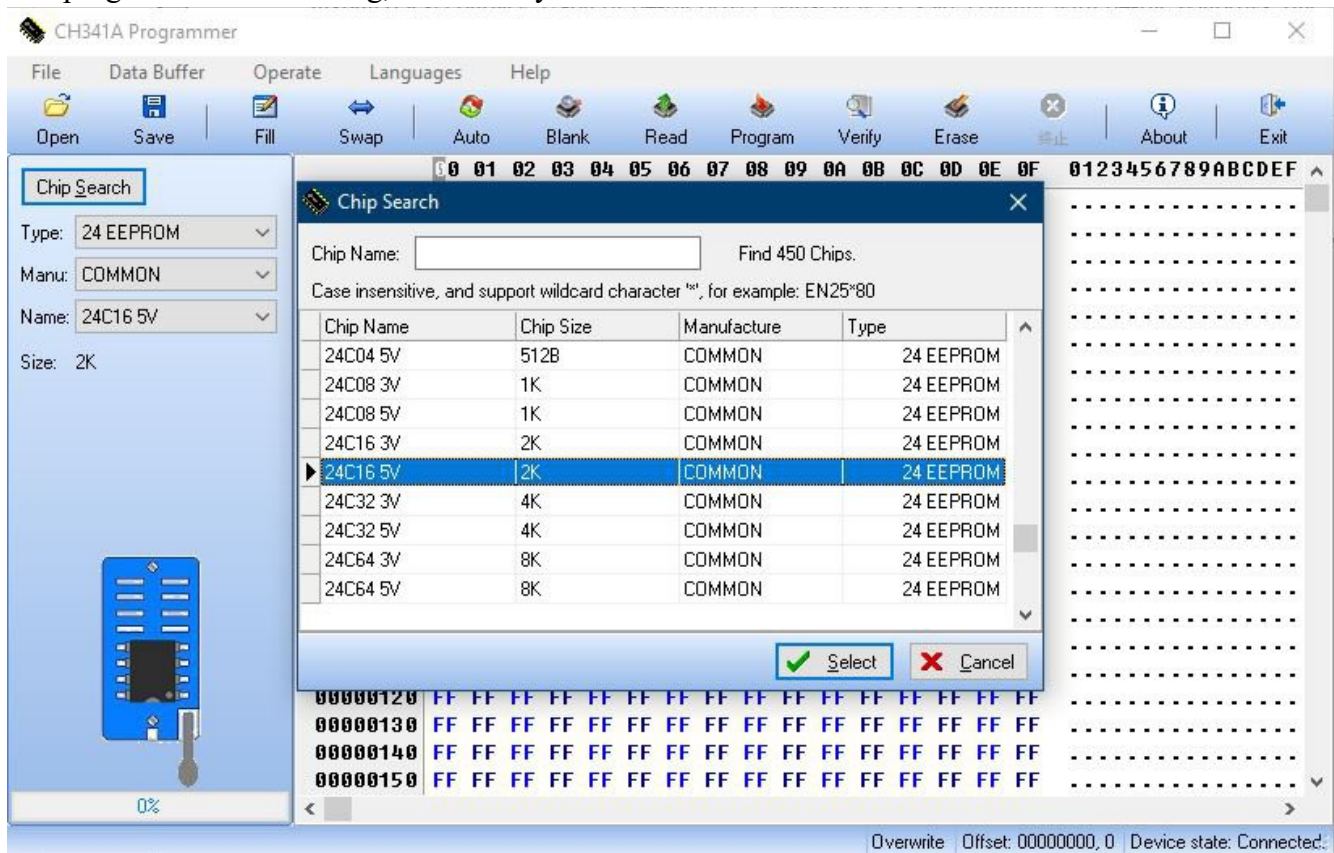
It should look exactly like this above when PIN 1 is set correctly everywhere. Some users on Youtube had an issue with Windows drivers, and discovered the issue was this little yellow jumper seen above in the wrong slot. The yellow jumper is suppose to be to the far right as seen in the above picture. Mine came that way, so I had no issue, but check your jumper location, just in case.

WINDOWS DRIVERS

Before you hook up the programmer to your radio, install the Windows drivers for the programmer and test it first. Download the CH341A drivers here: for .zip format: [ZIP FORMAT DOWNLOAD](#) for .rar format: [RAR FORMAT DOWNLOAD](#) or search Google for CH341A drivers.

Plug in the USB programmer to your PC. Open the drivers zip file, and extract to a new folder somewhere. In the new folder, first run "SETUP.exe", it will install an initial driver. Then, you have to install a secondary 32-bit or 64-bit driver. Most new PCs are coming with 64-bit Windows, but there's still many with 32-bit. Check this in your PC's System Settings. If you have 64-bit, run "DRVSETUP64.exe", if you have 32-bit run "driver-- 24CXX25XX.exe"

With the programmer connected, open CH341A.exe, click Chip Search and type in 24C16. Two options appear: 24C16 5V and 24C16 3V. I could not find a difference between the two, and just used 24C16 5V. Click Select. In the bottom right hand corner, make sure Device State: Connected is displayed. Click the Read button on the software. If the lower left bar goes to 100% with no error, your drivers and programmer are working, even if all you see a bunch of FF's.

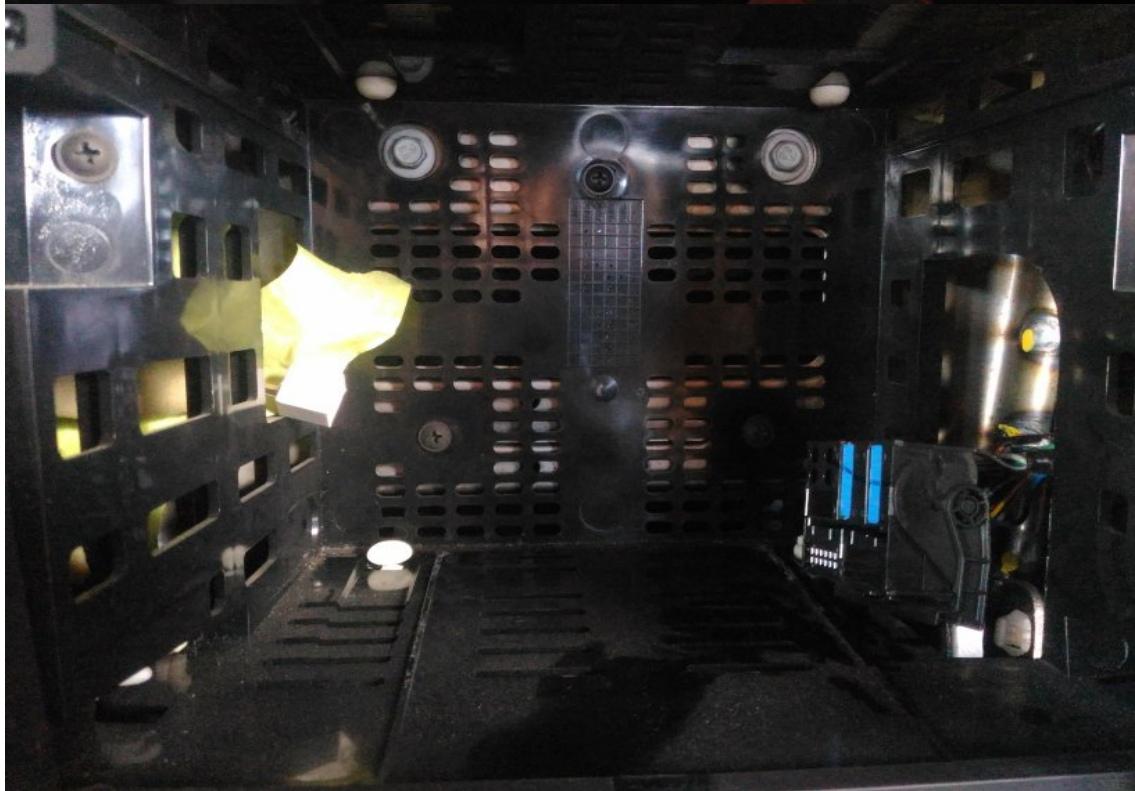


RADIO REMOVAL:

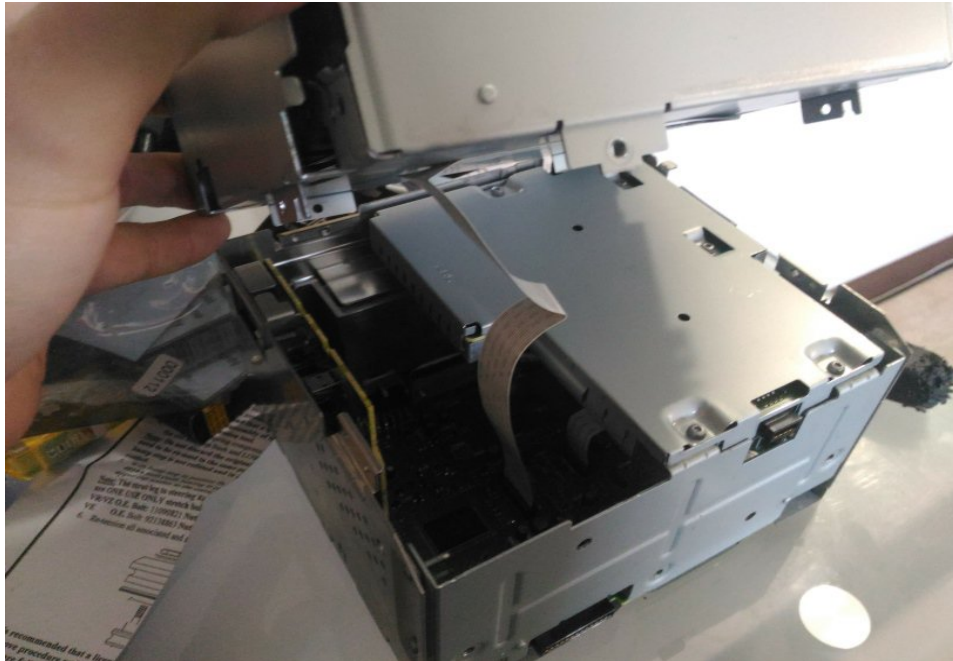
Removing the radio is very simple, but I accidentally broke the driver's side radio antenna connector, and it had to be super glued back on, so don't be like me, take your time. The front faceplate is simply removed by pulling outwards from the bottom. When you take off the front faceplate, there are 4 Torx screws with washers, 1 on each corner. Those are all that hold the radio to the frame. Remove the 4 screws. DO NOT PULL OUT THE RADIO YET. Read the big orange CAUTION label.

There are 2 connectors you must remove first, one for antenna on the left side, and the other is the main radio harness on the right side. Accessing the main radio harness on the passenger side is extremely simple. Remove the large plastic panel in the footwell below the glove box, and you will clearly see the large radio harness. It has a lever style lock. The lever is locked into place on the bottom. Lift up and unlock the lever and pull out the harness.

The driver side antenna connector is a little harder to get to. I accidentally broke mine pulling on the radio, so I inadvertently skipped this step, so disconnect it first. Remove the driver side footwell plastic trim under the steering wheel to access the antenna connector. It is a bit more difficult to access than the main harness.



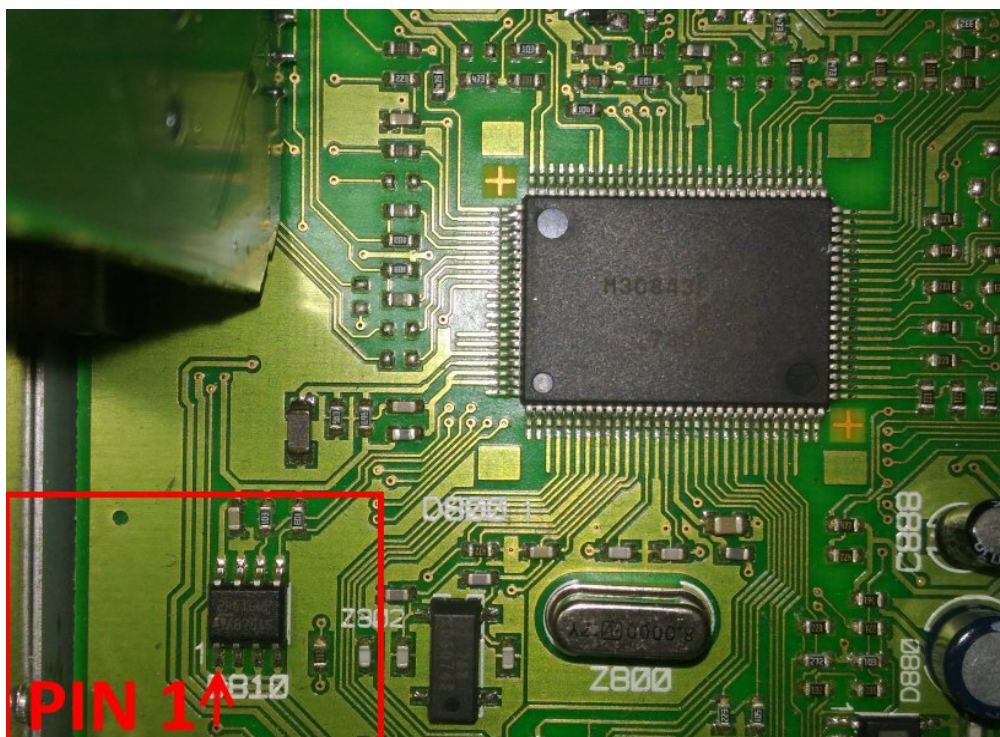
Once the radio is removed completely, remove all the other Torx screws on the front, they hold the CD player unit and the base of the radio together, so be careful as they come apart. After that, there is several smaller screws around the trim of the CD player. They are quite obvious which screws hold together the two parts.



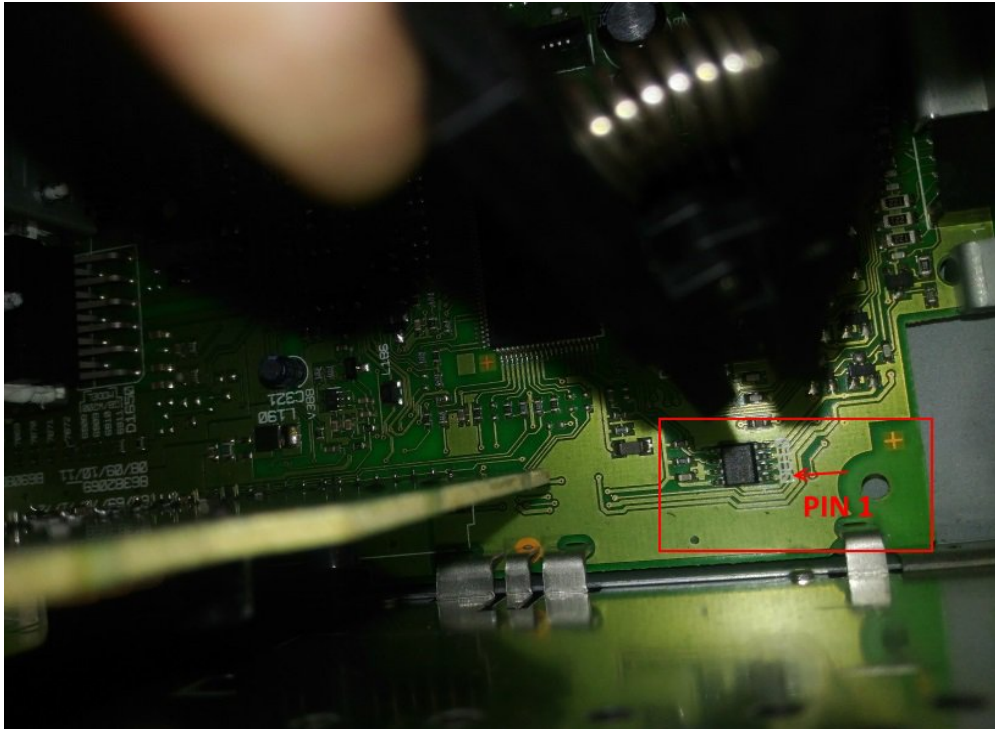
Once the radio is split into two parts, there is a ribbon cable. You can choose to disconnect it to make more room, but I was able to get enough room with the cable still attached. Since I flashed so many times, I kept it in place after the first attempt.

EEPROM CONNECTION

Keep your USB programmer unplugged for now. Look down inside the radio and find the tiny little chip labeled 24C16WP, that's your EEPROM chip that holds all the good stuff.



If you've checked your Pin 1 alignment for the 100th time, the red wire on your cable goes to the lower left pin on the EEPROM. Take the 8 pin clip and CAREFULLY attach it on to the chip. Again, red wire to PIN 1. It doesn't really clip on, it just squeezes against the pins, so it can pop off easily. Be very gentle with the connector and take your time not to break any pins, or else you may need to resolder it.

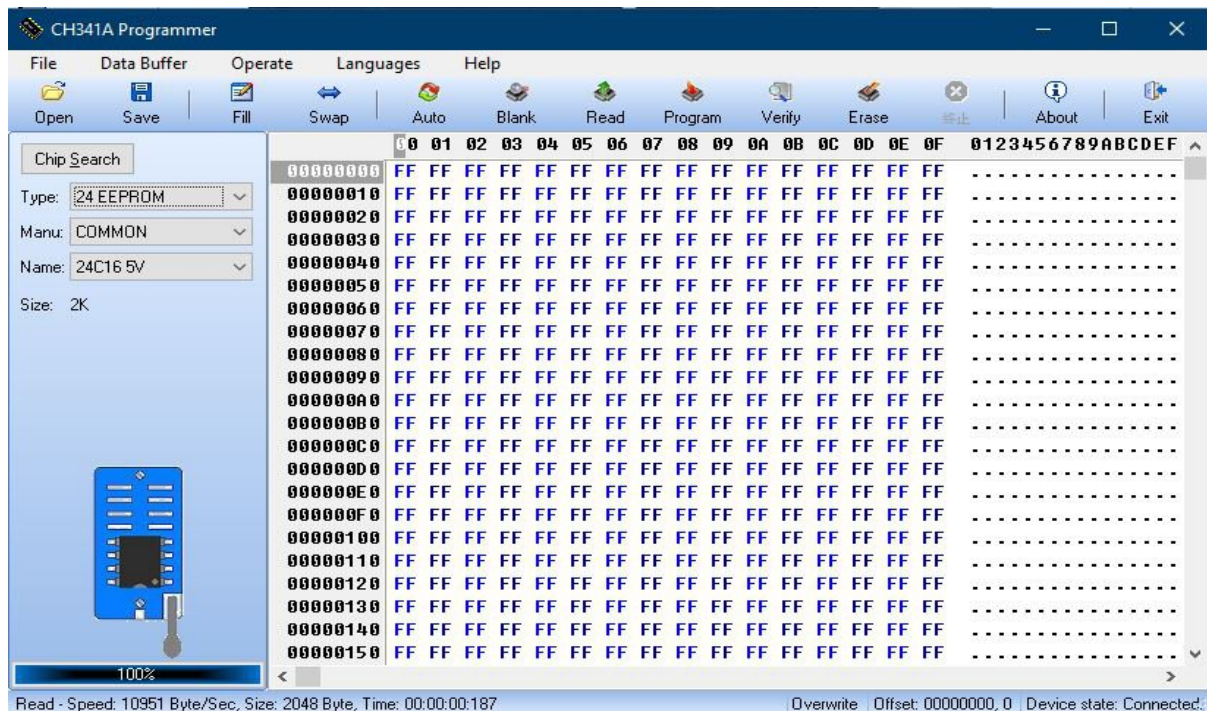


Here it is hooked up to my PC, the clip is attached to the EEPROM chip, connected to the programmer, plugged into the USB port. If you see 1 red light on the programmer, it is connected to the chip properly. If you see 2 red lights, it is NOT connected properly, so unplug the programmer and try to clip it again until you only get 1 light on. You can use a laptop in your car if it's easier, but I like having it at my desk PC.



EEPROM PROGRAMMING

Open the CH341A.exe software again. Check for Device State: Connected in the lower right corner. If you set up the software earlier, you will see exactly this. If not, repeat it the first install steps. Make sure Type reads 24 EEPROM, Manu: COMMON, and Name: 24C16 5V (or 3V, they both work)

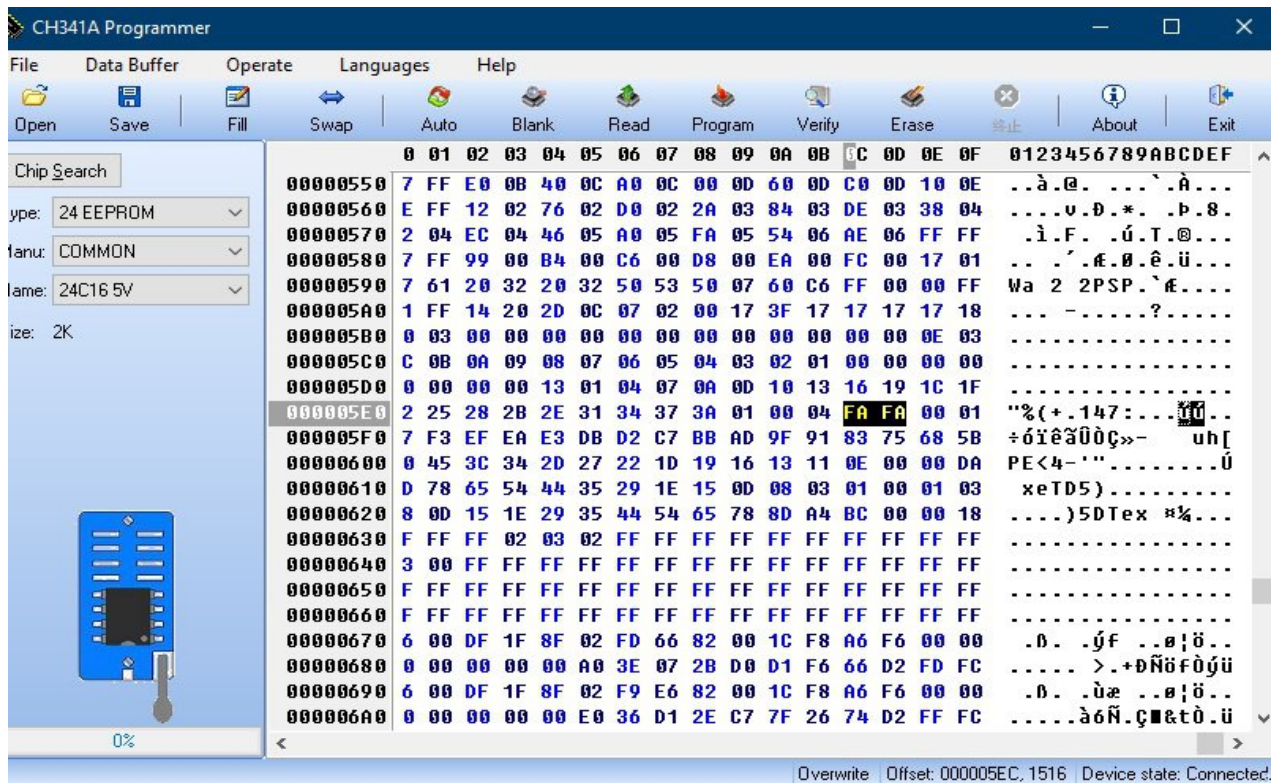


Click on the READ button, if successful, it will only take 2-3 seconds, and you will see all the FF's change to a bunch of random values. Now click VERIFY. It will compare the chip to the file it just read. Sometimes, programmers don't pull data exactly 100%, so make sure you VERIFY every time, so all data is pulled 100%. Once the verification is fine, **SAVE THIS FILE**. You want to make a backup copy of your stock file in case anything goes wrong. Go to File > Save. You'll see a bunch of Chinese letters here, ignore it, it's fine and save. It will save a binary file in a .bin extension. Name it something you'll remember like "Stock 09 G8 Radio EEPROM.bin". Saving a backup of your stock radio is critical in the event something goes wrong. Be careful to not click Erase. If you do this before making a backup of your stock file, you will have to have a new one made for you from another radio of the same model and year.

Now for the fun stuff. Think of these EEPROM files as an Excel spreadsheet. Each hex value has an Offset, which is the byte location of the data. Offset starts at 000 and goes left to right and then down. There is a legend on the far left column, and top row. The numbers go from 0-9, and then A-F. So for example: Offset: 00A is the first row, 11th column. Offset 122 is 19th row, 3rd column. Offset 3E9 is the 63rd row, 10th column, and so on. At the bottom right of the screen, it will tell you the Offset you have clicked on. Hex values are basically a short-hand way of expressing a numerical value, with some basic features. Generally, FF is an empty placeholder. 01 usually means enabled, 00 or 02 usually means disabled. Every chip has its own value rules, but this is a good rule of thumb.

VIDEO IN MOTION

Find Offset 5EC. Next to it, you will see a value 5ED. They should both read 03. I have found that SOME EEPROMs have these values shifted maybe one or two spots, so it could be 5ED-5EE or 5EB-5EC, but you will clearly see two side-by-side values of 03 on a stock radio. The stock Rear Aux is programmed to disable the video input over 3kph, hence the 03. This feature cannot be disabled, but it can be programmed to a much higher speed that will never be achieved. Both 03s need to be changed to a different value for it to take effect. I chose 250kph. On a Decimal to Hex translator, 250 in hex is FA. Unless you plan to need your Rear Aux video over 250kph, change both 03s to FA.



When you have made the changes, SAVE this file, something like “G8 VIM Change.bin”. If VIM change is all you want, you can now Program the EEPROM using this file. Click the PROGRAM button. Once it has been programmed, click VERIFY again and ensure the the Verification comes back a success. If you receive a verification error, reprogram and reverify until it clears up. Try unclipping and reinstalling the clip and repeat until the verification is a success. VERIFY compares the software programming to the programming written on the chip. Errors could be completely random, so make sure it verifies successfully.

Then you can unplug everything, reassemble the radio, install, and VIM will be unlocked for Rear Aux video input. Or if you want to make a few more custom changes, then keep reading before you program the EEPROM.

You may receive a “Security Lockout Active, Vehicle Data Mismatch” on first start-up after reinstalling. It happened to me a few times, and turning the radio power off and on a couple times fixed it. Some reported turning the key off and back on to clear it. If it persists after this, the data may have been programming incorrectly.

DISPLAY BLUE TEXT

You can change your red LCD text to blue. Change Offsets 02B, 03B, & 04B from 11 to 12. All 3 bytes must be changed. Blue text is found on many Holden models like the Calais. Unfortunately, your radio faceplate buttons will remain red unless you replaced all the internal LEDs. So I stayed with red.

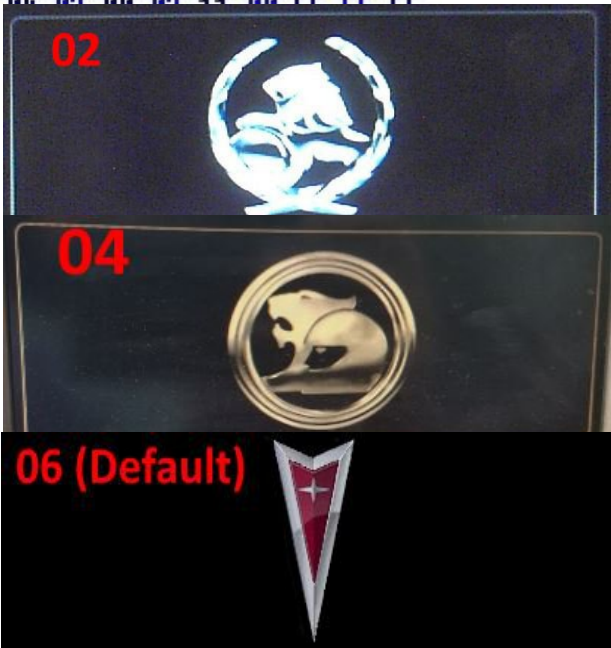
	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00000000	09	08	FF	FF	FF	FF	FF	02	AD	00	01	99	00	00	00	00
00000010	7E	7E	6A	15	7A	00	00	00	00	00	55	00	06	26	03	02
00000020	FF	00	02	05	0B	9D	01	04	03	00	03	11	00	FF	FF	FF
00000030	FF	00	02	05	0B	9D	01	04	03	00	03	11	00	FF	FF	FF
00000040	FF	00	02	05	0B	9D	01	04	03	00	03	11	00	FF	FF	FF
00000050	39	4C	32	30	32	30	31	36	01	00	67	93	01	00	FF	FF



RADIO STARTUP LOGO CHANGES

The stock G8 has a few other startup logo/animations aside from the Pontiac logo built-in. Go to Offset 01C. You will see hex value 06 is for the stock Pontiac logo. Change this offset for new logos: Holden logo is 01. Holden/Senator crest logo is 02, Chevrolet is 03. HSV is 04, VXR is 05 and Pontiac is 06. Complete custom logos can be done, but that is a lot more extra work. The image files are stored on another chip.

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00000000	9	0B	FF	FF	FF	FF	FF	02	AD	00	01	99	00	00	00	00
00000010	E	7E	6A	15	7A	00	00	00	00	00	55	00	06	26	03	02
00000020	F	00	02	05	0B	9D	01	04	03	00	03	11	00	FF	FF	FF



REVERSE CAMERA ENABLE FOR V9.XX+ RADIOS

Only radios with head unit version V9 and up will have this feature. V9's came out in mid-year 2009, but there is no pattern to which cars have it. Some early 09.1 cars have it, but some 09.5 cars like GXPs don't. To check, Power down the radio, hold Track Left, Disc Right and Power for 10 seconds. It will flash 3 pages, on the first page you will see AHU MCU Version. If it is 9.xx and above, you can do this mod. This feature enables a Reverse Cam On/Off setting in the radio's main settings menu, and when enabled, it will automatically switch to the video input that is plugged into the camera-specific Rear Aux port on the back of the radio. Without this, any style reverse camera could be installed to the standard Rear Aux video input, and every time you reverse you would need to switch to Rear Aux source on the stereo and would lose any additional video input options without a splitter. Some aftermarket options wire into the BCM and allow a splitter cable that will automatically switch between the two, but the factory option does it automatically with no additional hardware. Additionally, the factory Reverse Cam feature ignores VIM limitations and would work over 3kph regardless if VIM limit wasn't unlocked. This also works on GXP M6 cars, since the BCM detects a signal for being in Reverse gear, confirmed by a few testers.

When the Reverse Camera is enabled, it will utilize a separate video input on the radio, different from the normal "Rear Aux video input". You will need to build a rear aux cable with two video inputs. More on rear aux cable building below.

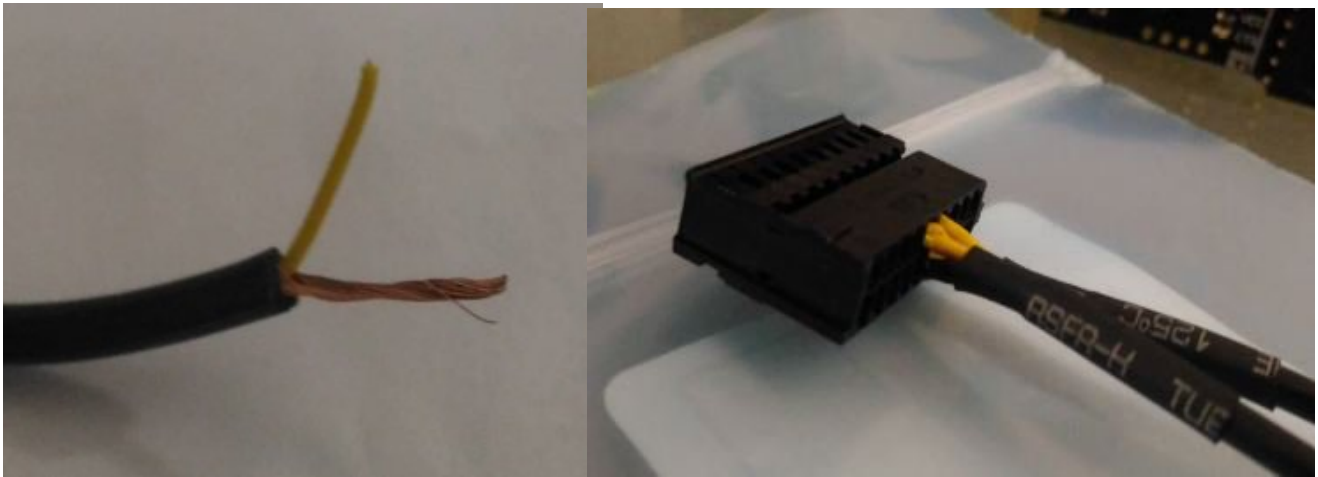
Two bytes need changing here. First: Offset 00E needs to be changed from 00 to 55. If it says FF here, you cannot enable this feature (because it's not V9). Second: Offset 635 needs to be changed to 01 (it may be 00 or 02 default). That's it. After you turn the Reverse Cam to On in the radio, it will automatically switch to the Reverse Cam video input when you put it in Reverse. The stock screen includes an overlay, so be sure to use a reverse camera that does not have its own overlay guidelines.



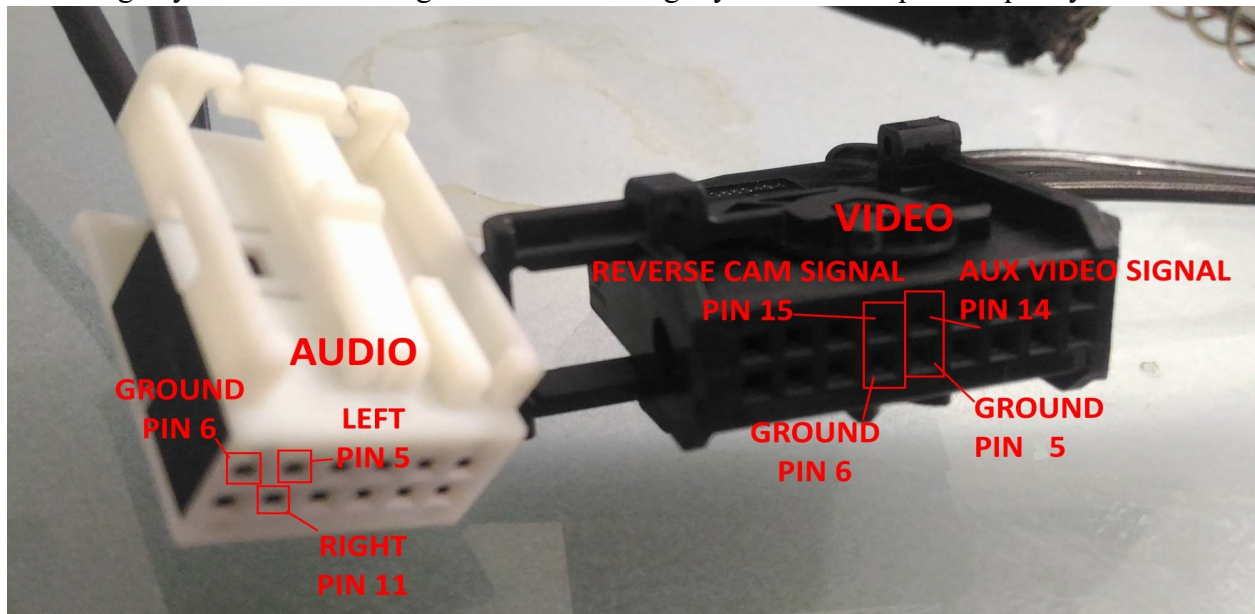
REAR AUX CABLE

There are some vendors online selling Rear Aux cables pre-made, but you can make your own for under \$15. You just need a spare RCA cable strand to cut up and connect the bare wire to crimp pins, and plug the pins into special connectors that plug into the back of the radio. There's 2 connectors, one for video, one for audio. I ordered these from Digi-Key.com. Qty and part numbers:

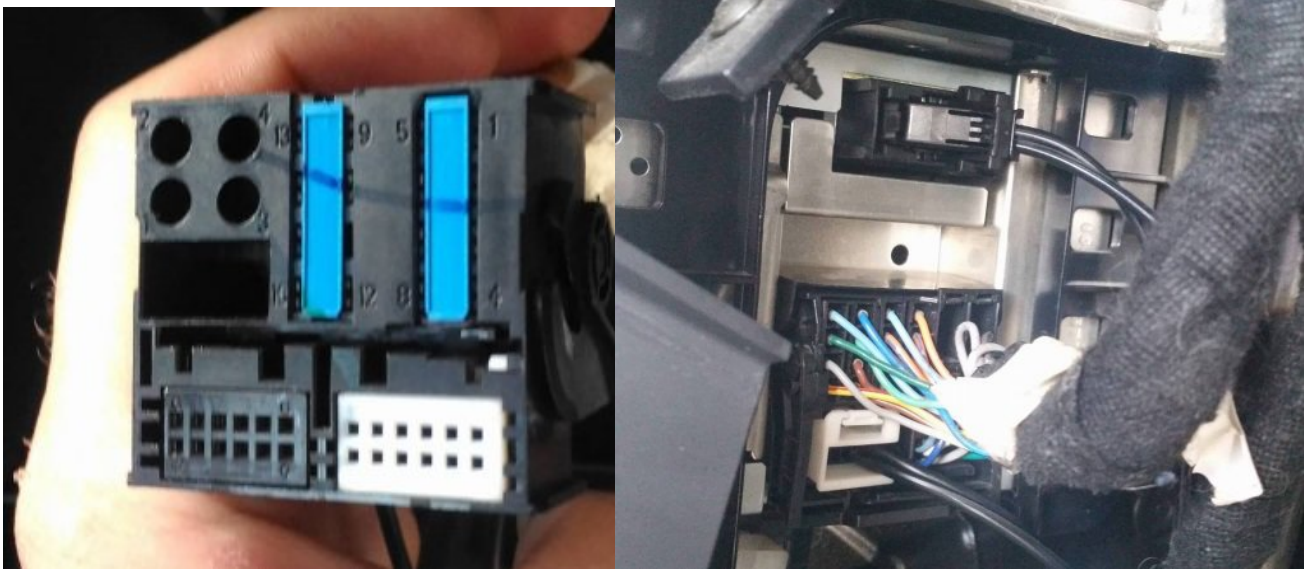
- 1) 1-1355350-1 (Video radio connector plug)
- 1) 1355348-1 (Video wire pin block)
- 1) 2-1355524-3 (Audio radio connector plug)
- 1) 1394048-1 (Audio wire pin block)
- 7) 928999-1 (Wire pin crimps, only need 5 if you aren't installing a reverse camera into V9)



Cut apart an old set of RCA cables, or find some RCA to bare wire end cables. Inside a standard RCA cable, the inner shielded wire is the signal, and the bare wire is the ground. For audio: connect the left and right signal wires to their own crimp pin, but twist the two grounds from each cable into a single crimp pin. For video: each signal and ground needs its own crimp connector. Do not combine the ground wires on the video cable. Use some heatshrink and a proper crimp tool for better signal quality. Avoid having any bare wire showing. Just heatshrinking my bare wire improved quality 100%.



After the RCA wires have the crimped connectors installed, insert the wires into the proper pin blocks to the correct pin location as seen above in the picture with the pin numbers/description. Look for small numbers on the pin blocks to find pin locations. After inserting all the wires into the correct locations on the pin blocks, insert the pin blocks into the radio connector plugs, they only insert one way. The assembled white audio connector plug goes inside the main radio wiring harness. The assembled black video connector plug goes in its own empty port above the main radio wiring harness.



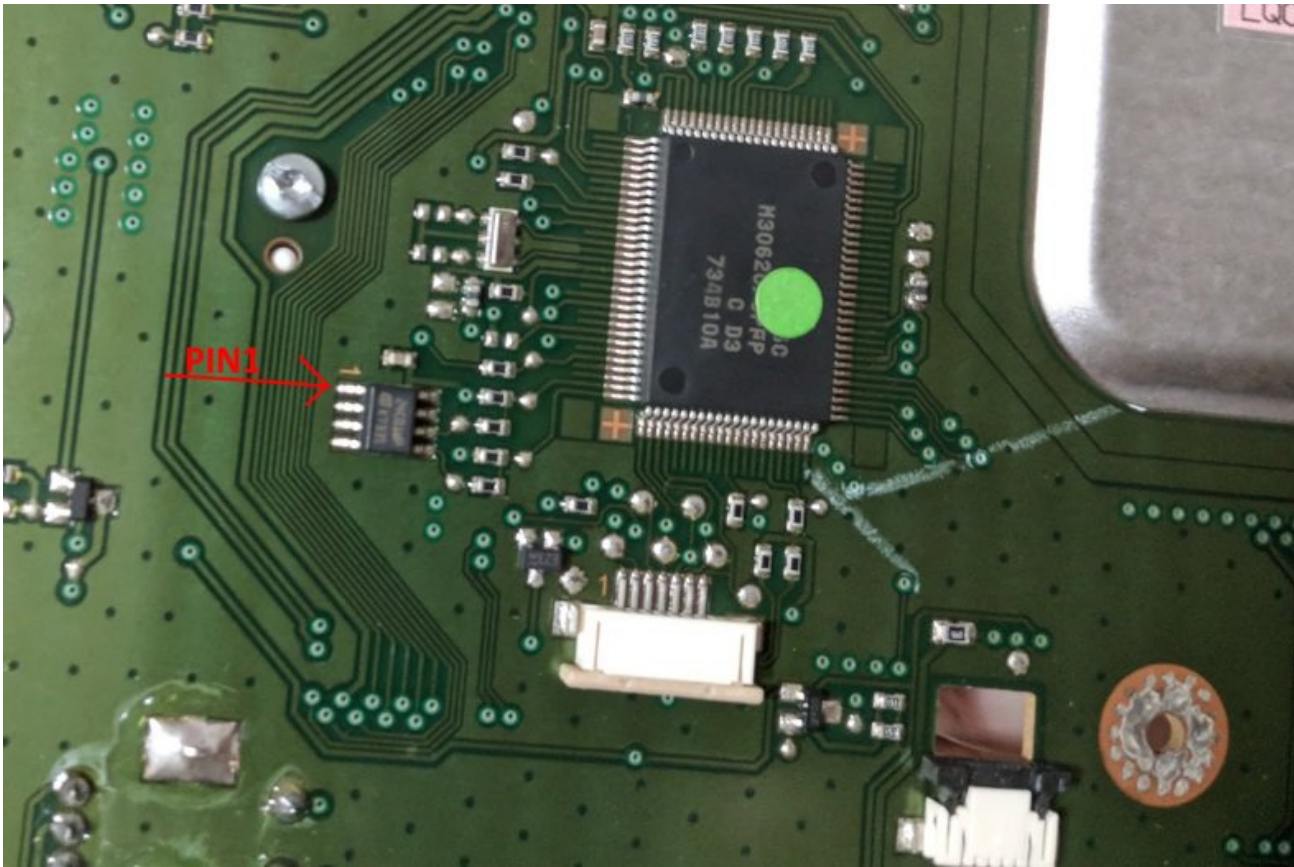
VIN CHANGE

Swapping in a completely different radio (replacing a broken one, bought used, etc) will show Security Lockout Active on the main screen. It is because there is a VIN number stored in the EEPROM that must match your car. However, the programming is done SLIGHTLY different. Before now, modifications required changing the hex values directly, but if you noticed a bunch of scrambled text on the right side of all the hex values, that is the ASCII translation. 8 bytes of data need to be changed from Offset 050 to 057. These are the last 8 digits/letters of your VIN. Highlight the offsets, and on the right side of the screen, you'll see standard alphanumerical keys also highlighted. You can type in the last 8 digits of your VIN in there on the right, overwriting the text, and the hex offsets on the left will generate themselves automatically. This is only required for swapping radios to prevent Security Lockout Active, and only if you have an already matched/paired fascia to go with the main radio.

FACEPLATE PAIRING KEY

Swapping a front faceplate (fascia) only will also cause Security Lockout Active. The fascia/faceplate is a 24C01 chip, with a much smaller .bin file. The faceplate does not store the VIN, but there is a “pairing key” between the radio main unit and faceplate. To get this pairing key, you must either read it off a previously paired faceplate (your stock faceplate most likely) or from the head unit itself. The key can be anything, so if a head unit and faceplate are sourced separately, either key will work, as long as they both match each other in their files.

The faceplate EEPROM chip is exposed after removing the metal backing plate and screws. It is labeled 24C01WP.



There are 3 bytes on both the main unit and the fascia EEPROMs that must match. The 3 hex values are stored at Offsets 059 to 05B on the main unit and 031-033 on the fascia unit. These locations must match each other.

FACEPLATE																	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	0123456789ABCDEF
00000000	CF	28	7F	05	41	41	80	00	08	01	07	10	01	01	02	08																	Ï(■.AA
00000010	05	18	BB	BB	BB	BB	BB	BB	BB	CC	CC	CC	DD	DD	DD	AA																	..>>>>>>>>ïïïÿÿaa
00000020	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA																	aaaaaaaaaaaaaaaaaaaaaa
00000030	AA	00	67	93	0B	64	28	7F	05	00	93	64	08	00	FF	FF																	ä.g.d(■.. d....
00000040	A5	96	00	00	00	00	00	00	00	00	00	00	00	00	00	00																	¥
00000050	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00																	
HEAD UNIT																	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	0123456789ABCDEF
00000000	09	0B	FF	FF	FF	FF	02	AD	00	01	99	00	00	00	00																		-.....
00000010	7E	7E	6A	15	7A	00	00	00	00	00	55	00	06	26	03	02																	~~j.z.....U..&..
00000020	FF	00	02	05	0B	9D	01	04	03	00	03	11	00	FF	FF	FF																	
00000030	FF	00	02	05	0B	9D	01	04	03	00	03	11	00	FF	FF	FF																	
00000040	FF	00	02	05	0B	9D	01	04	03	00	03	11	00	FF	FF	FF																	
00000050	39	4C	32	30	32	30	31	36	01	00	67	93	01	00	FF	FF																	9L202016.g.....
00000060	18	0C	12	28	05	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF																	...f.....

This is a properly paired faceplate and head unit, with both files have matching pairing keys.

Finally, you make any modifications to your car at your own risk. I will not be responsible for damages you cause, so please research beyond this document prior to doing the work. Some bytes in the EEPROM may be shifted a few offsets in certain radios. If the hex values don't line up, don't assume that it's the correct offset to change. It may be nearby on the same line, or the next line, it depends. Proceed with caution, research, compare other bin dump files, or ask for help. If you are unsure, pay a professional to do it, or contact a vendor for a flash box that plugs into your OBD2 port that will make these changes without taking out the radio.

Stay modding!

Huge thanks to Nic Powell for contributing research and testing EEPROM bin files with me

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